

Global Light System for JEM-EUSO

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The Global Light System (GLS) is a network of ground-based Xenon flash lamps and steered UV lasers to validate the key functions of the JEM-EUSO instrument. These functions include triggering efficiency, the accuracy of intrinsic luminosity measurements, and the reconstructed pointing direction accuracy. GLS units will generate benchmark optical signatures in the atmosphere with similar characteristics to the optical signals of cosmic ray EASs. The lasers will generate tracks and the flashers will generate point flashes. But unlike air showers, the number, energy, precise time, direction (lasers) can be specified. JEM-EUSO will reconstruct the pointing directions of the lasers and the energy of the lasers and flash lamps to monitor the detector's triggers, and accuracy of energy and direction reconstruction. 12 GLS units will be deployed at selected sites around the globe. The JEM-EUSO footprint will pass over a GLS unit on average once per (near) moonless night under clear conditions for appropriately selected sites. The 12 units will be supplemented by campaign style measurements with an airborne unit that will be flown over the open ocean at selected altitudes under JEM-EUSO. A GLS prototype in an airplane will support a high-altitude balloon flight in 2014 of a proto-type JEM-EUSO telescope. We will describe the concept and system design and report on the status of prototyping and the selection process for candidate sites.